

REMARKS

Claims 1-11, 13-28, 30-34, 36-46, and 48-58 remain pending. Claims 1, 18, 36 and 56 are independent. In this reply, new claim 58 is being added, and independent claims 1, 18, 36 and 56 are being amended to further clarify what is being claimed. Support for the amendment can be found at least on page 11, lines 11-26, page 14, lines 18-23, page 15, lines 19-29; support for new claim 58 can be found at least on page 15, lines 22-26 of the originally submitted specification.

Claim Rejections – 35 U.S.C. §112

Claims 1-11, 13-28, 30-34, 36-46, and 48-57 were rejected under 35 U.S.C. 112, second paragraph as allegedly being indefinite because the Examiner did not understand what a “virtual copy” is meant. In this reply, without conceding to the propriety of the rejection, independent claims are being amended to recite that the first point in time virtual copy updates or sets the first bitmap without copying the modified data to the second volume. It is believed that the amendment overcomes the rejections.

Claim Rejections – 35 U.S.C. §103

The Office Action rejected claims 1-11, 13-16, 18-28, 30-33, 36-46 and 48-51, 53-56 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,643,671 to Milillo et al (“Milillo”), in view of U.S. Patent No. 6,253,295 to Beal et al. (“Beal”). Claims 17, 34 and 52 were rejected under 35 U.S.C. §103(a) as being unpatentable over Milillo in view of Beal and further in view of U.S. Patent No. 5,504,861 to Crockett et al. (“Crockett”). Claim 57 is not rejected over any references.

The final Office Action dated June 14, 2007 maintains the same rejection as in the previous Office Action, citing Milillo’s in col. 4, lines 47-56 and col. 8, lines 42-60. Applicants respectfully disagree.

As understood by applicants, those passages of Milillo disclose that its primary target volume stores a copy of the initial data file and a copy of the data of the write command record from the source volume. "A first point in time virtual copy" claimed in independent claims of the present application, on the other hand, performs a virtual copy by setting or updating the first bitmap. The data that is modified is not actually copied to the second volume. Rather, a bitmap is set to indicate that data is modified on the first volume.


With respect to Beal, while Beal discloses enabling pair-pair remote copy, Beal does not disclose or suggest those elements that Milillo lacks. For at least this reason, applicant believes the cited references do not disclose or suggest every element claimed in independent claims and their respective dependent claims by virtue of dependencies, and therefore those claims are unobvious over the cited references.

With respect to the rejection of claims 17, 34 and 52 under 35 U.S.C. §103(a) over Milillo in view of Beal and further in view Crockett, because Crockett does not disclose or suggest what Milillo and Beal fail to disclose or suggest as discussed above, those claims are also not obvious for at least the same foregoing reasons.

With respect to new claim 58, none of the cited references disclose or suggest that synchronizing the second volume with a third volume at the remote site further includes inspecting the first bitmap to determine whether the modified data is on the first volume or the second volume.

This communication is believed to be fully responsive to the Office Action and every effort has been made to place the application in condition for allowance. A favorable Office Action is hereby earnestly solicited. If the Examiner believes a telephone conference might expedite prosecution of this case, it is respectfully requested that the Examiner call applicant's attorney at (516) 742-4343.

Respectfully submitted,



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